SONY

IP LIVE PRODUCTION UNIT

NXL-IP55

OPERATION MANUAL English

1st Edition (Revised 2)

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Overview

Features

The NXL-IP55 IP Live Production Unit is an IP transmission device that allows upstream and downstream transmission of HD video signals, audio signals, and various control signals with low latency of less than one field (excluding network delays). Using the unit allows you to configure a live production system over a network.

Network synchronization

Devices can be synchronized via a network. Low-latency video transmission is made possible during live production by eliminating the need for synchronization via a frame synchronizer.

Various transmission signals

Up to four video channels are available for transmission with up to three in the same direction. Ten audio channels (five pairs) are available for transmission with eight in the same direction. Eight GPIO channels, six tally channels, and one channel for a synchronization signal are also available.

Note

The content of this document applies to firmware version V1.20.
NXL-IP55 units with different firmware version cannot be connected together. You can check the firmware version in [Device Information] on the [Status] page in the Web menu.
If using an NXL-IP55 unit with a different firmware version, contact your store or point of purchase.

Transmittable Signals

Video signals

1080/50i, 1080/59.94i, 720/50P, 720/59.94P, 1080/25PsF, 1080/29.97PsF
: Can transfer up to four channels of HD SDI signals, with up to three in the same direction.

1080/50P, 1080/59.94P
: Can transfer total of two channels using Dual Link SDI, with one in each direction.

Note

Signals with different formats cannot be transferred at the same time.

Audio signals

Up to five pairs of two channels (48 kHz/24 bit) are available for audio signals, analog audio signals, and intercom signals embedded on HD-SDI signals (up to eight channels in the same direction).

Notes

- HD-SDI embedded audio can be transmitted on Ch1 to Ch2 or Ch1 to Ch4. The audio will not be transmitted on Ch5 and above.
  Metadata attached to HD-SDI signals cannot be transmitted.
- When transferring Dual Link SDI, audio signals can be embedded in Link-A only.

Tally signals

Three channels each are available for R tally signals and G tally signals.
However, the transmission direction for all channels is the same.

GPIO

Eight channels are available.
The transmission direction can be switched by using four channels as one group.

Supported Networks

Use this unit in a network that meets the following specifications. Check whether the network you want to use fulfills these requirements by performing a network test in the web menu before use.

Note

The network test only displays the status of the area that can be detected at the moment the test is executed. It does not guarantee the quality of the network or the operation of this unit.

Network connected to the MAIN connector

This network connects to the unit's MAIN connector and transmits video signals and control signals.
The requirements for this network are as follows.

- The network is a secure LAN independent from other systems and networks. It cannot be used as a WAN or Internet line.
- Use a switch with 5 or less levels.
- Interface: 1000BASE-T
- MTU: 1500 bytes or higher, no fragments
- Latency: 10 ms or less without fluctuation (one way)
- Bandwidth: 600 Mbps or more maintained

Network connected to the CONTROL connector

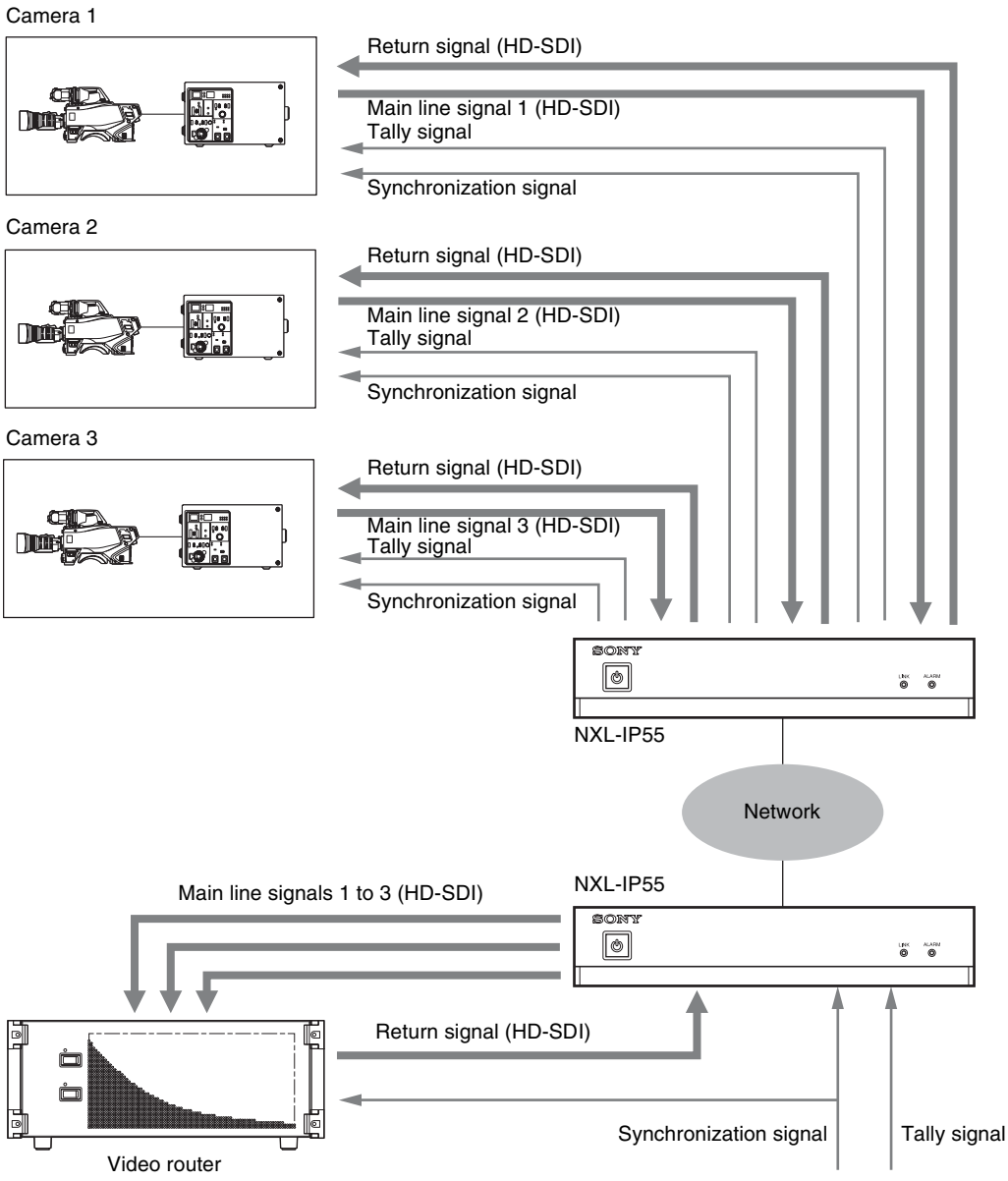
This network connects to the unit's CONTROL connector and connects the computer used to configure this unit.

- Interface: 100BASE-TX

System Configuration Examples

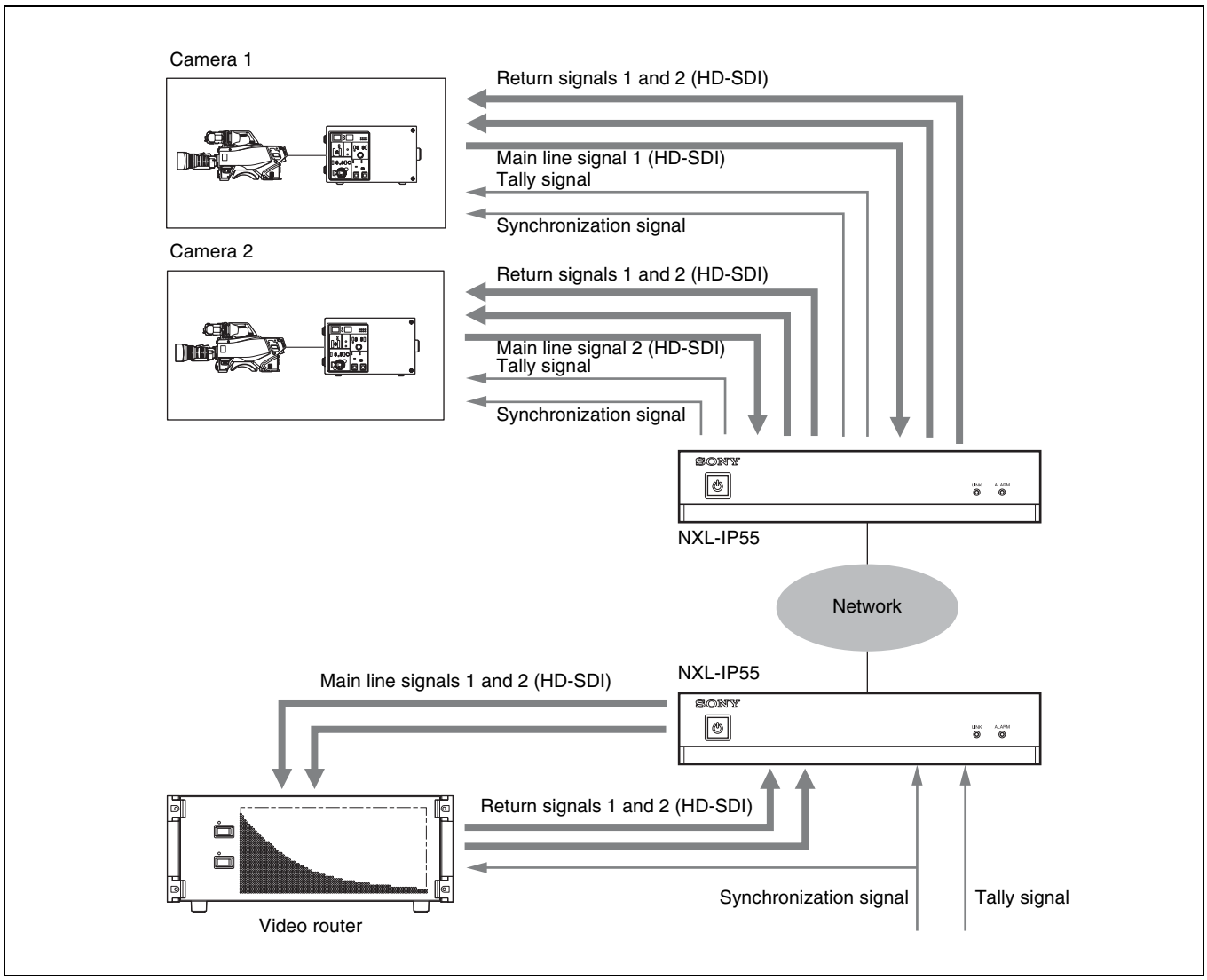
3-Camera System

The main line signals from three cameras can be transmitted. One channel is available for transmitting return signals.



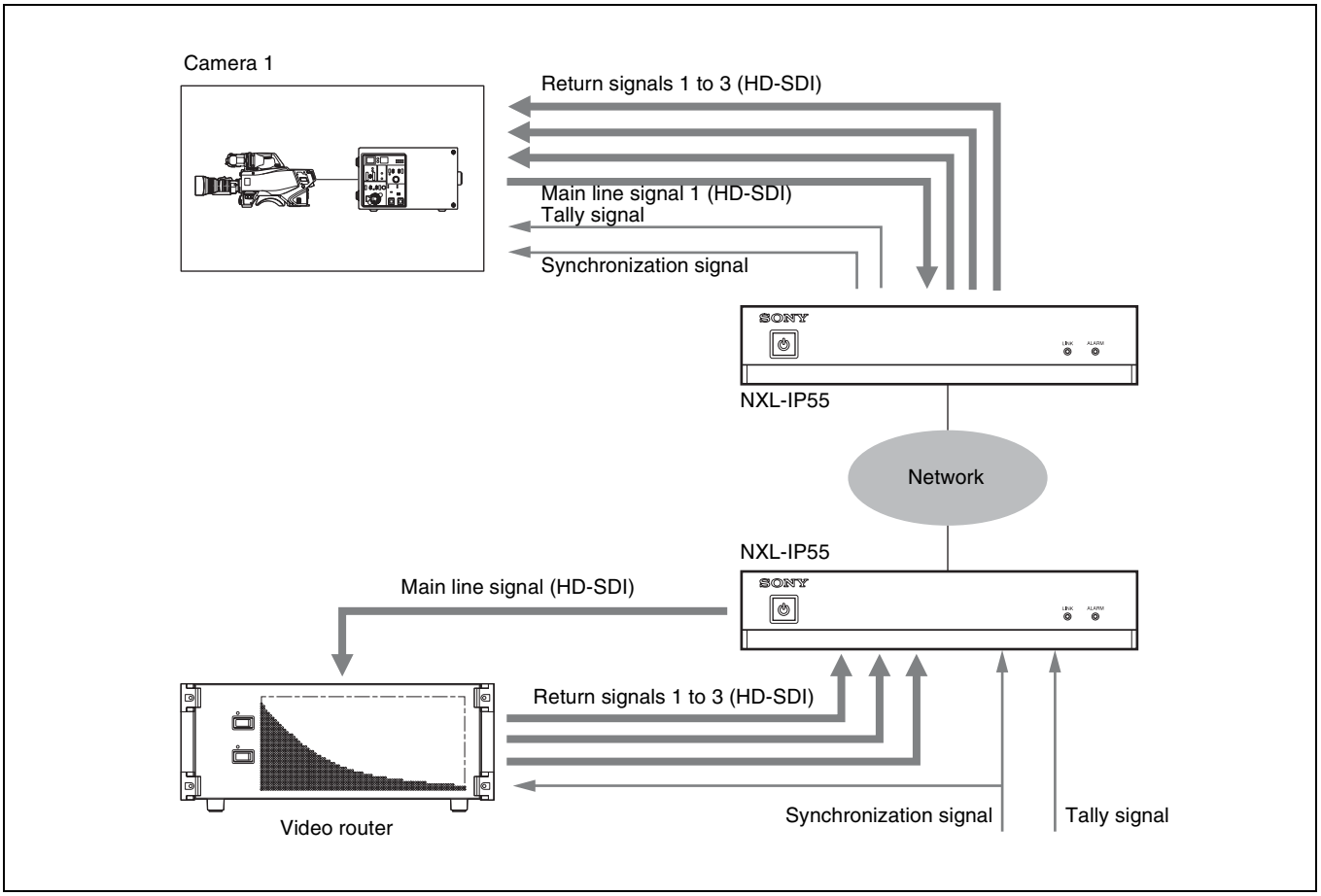
2-Camera System

The main line signals from two cameras can be transmitted. Two channels are available for transmitting return signals.



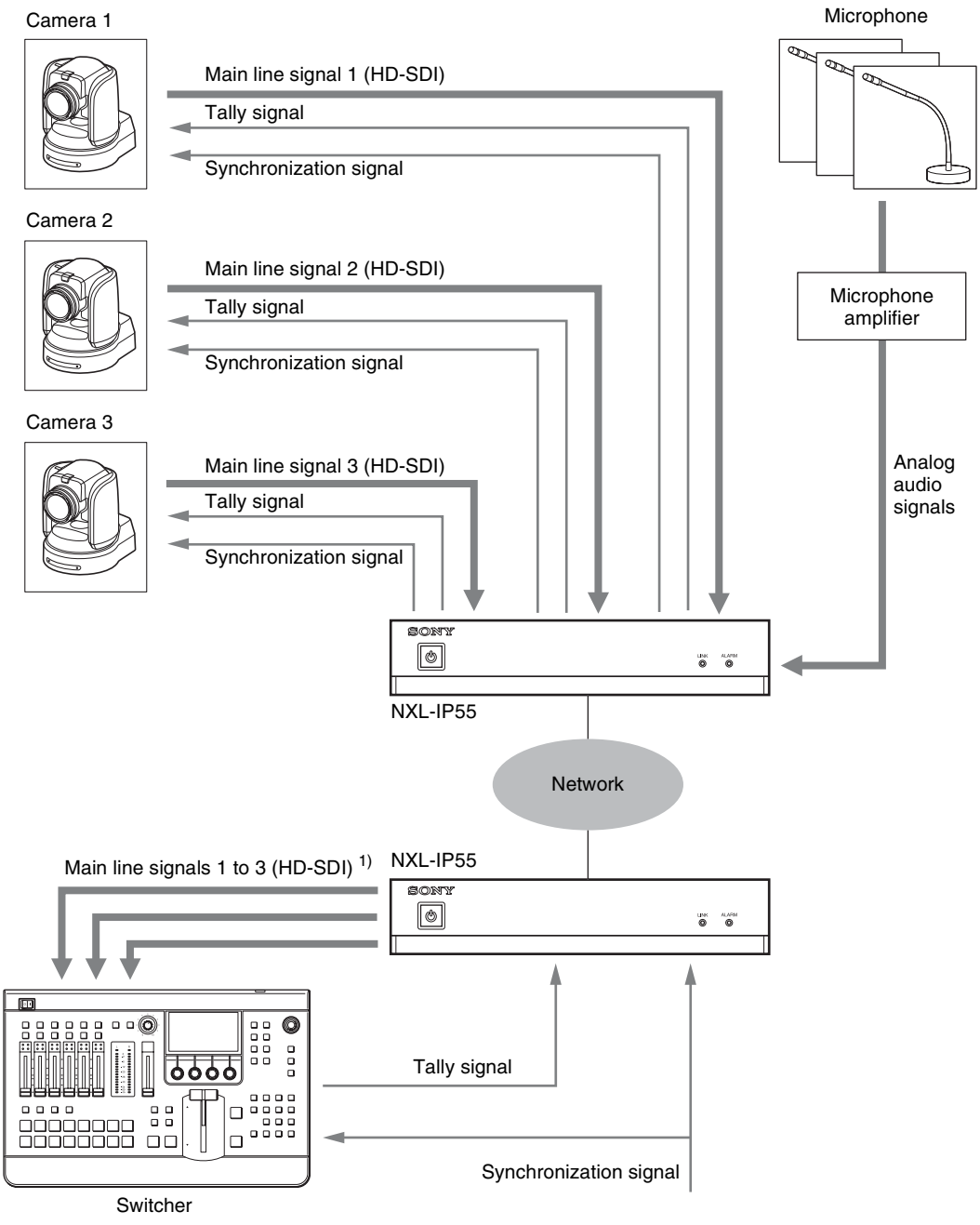
1-Camera System

The main line signal from one camera can be transmitted. Three channels are available for transmitting return signals.



System Using Cameras Unable to Output SDI Audio Signals

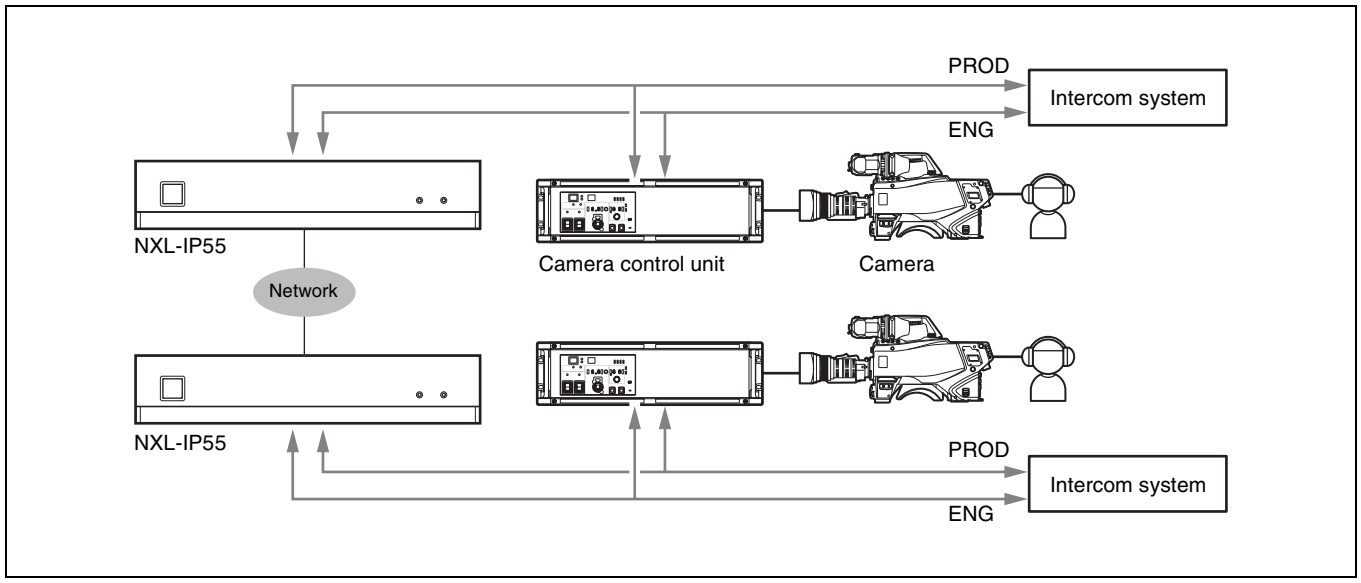
When using cameras that cannot embed audio signals onto HD-SDI signals, you can input analog audio signals via a separate channel and map them onto HD-SDI signals for transmission. As audio input levels are at line level, an external microphone amplifier is necessary when using a microphone.



1) Audio signal inputs are embedded.

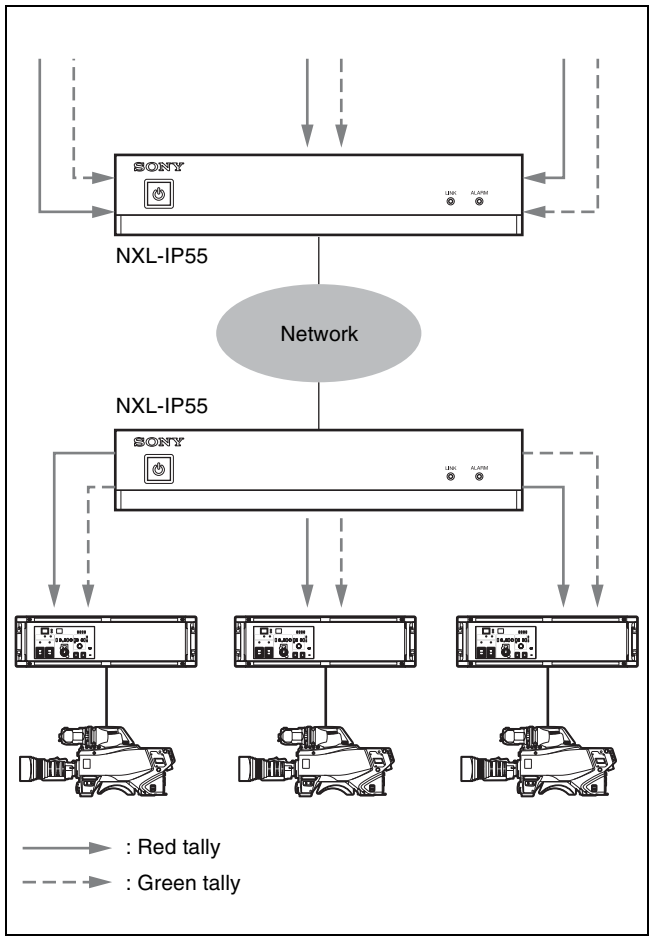
Configuration Example when Using Intercom

Connecting an intercom system to this unit's AUDIO/INTERCOM connector enables intercom transmission and allows you to combine two intercom systems.



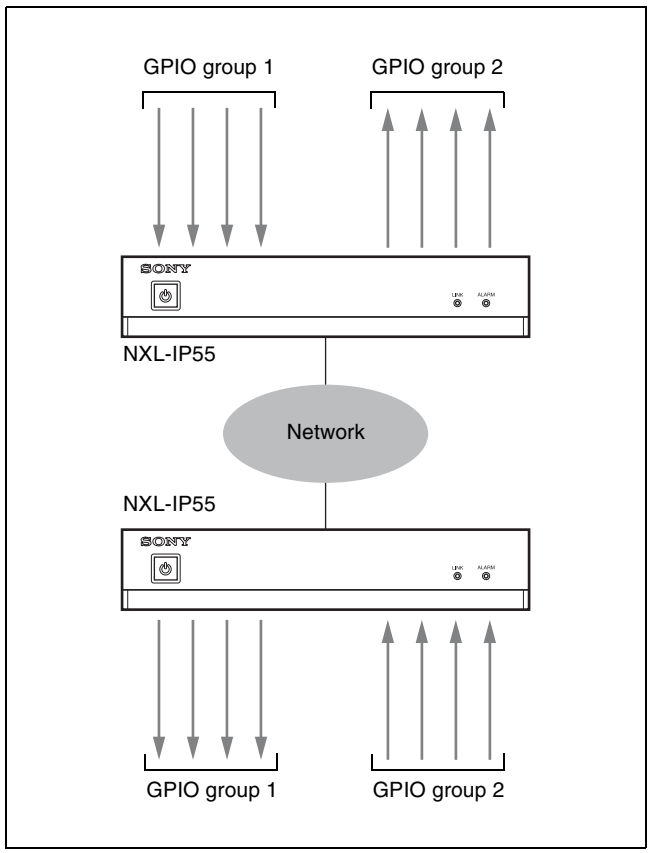
Tally Signal Usage Example

Two channels per camera for three cameras are available for transmitting tally signals via the unit's TALLY/GPIO connector.



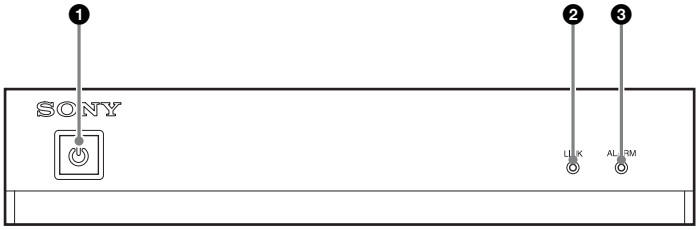
GPIO Signal Usage Example

Two groups of four GPIO (General Purpose Input/Output) signals can be transmitted via the unit's TALLY/GPIO connector. The transmission direction can be changed for each group.



Names and Functions of Parts

Front



❶ Power switch / indicator

This is the power switch. The indicator lights when the unit is turned on. Stable output of video signals may take some time after the unit is turned on. The LINK indicator will blink or light blue and video signals will not be output until proper output is established.
To turn the unit off, press and hold the switch for at least 2 seconds.

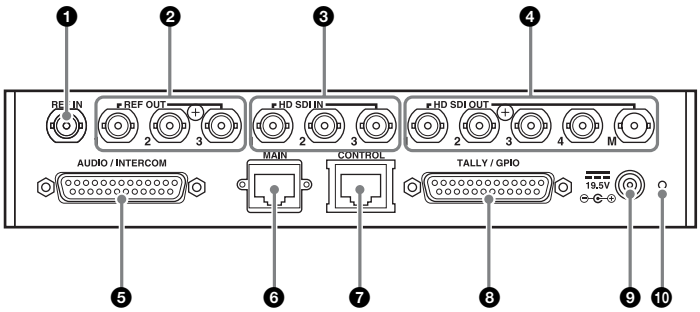
❷ LINK indicator

Indicates the connection status.
Lit green: Connected to the partner device.
Blinking green: Connected to the partner device, but there is a problem with the status of the network connected to the MAIN connector.
Blinking blue: Connection is being established. As the connection process progresses, the indicator blinks more rapidly.
Lit blue: Connection has been established, and the unit is waiting for signal output to stabilize. Video signals are not output during this time.
Off: Not connected to the LAN.

❸ ALARM indicator

Lights red when an error is detected.
Check the [Status] page of the web menu for details on the error.
The indicator blinking red indicates an internal error. If restarting the unit does not resolve the problem, consult your Sony service representative.

Rear



❶ REF IN connector

Inputs the synchronization signal.
Input is not necessary when using the SDI signal as a synchronization signal, or when the synchronization setting is set to [Follower] and a frame synchronizer is not used.

❷ REF OUT connectors (1/2/3)

Output synchronization signals. The same signal is output from each of these three ports.

Notes

- The subcarrier phase during black burst signal output is not guaranteed.
- The accuracy of frequencies when synchronization is not applied to unit is not guaranteed.

❸ HD SDI IN connectors (1/2/3)

Input SDI signals for transmission.
When using an SDI signal as the synchronization signal, input it to HD SDI IN connector 1.

❹ HD SDI OUT connectors (1/2/3/4/M)

Output transmitted SDI signals or SDI signals that were input to this unit.
Monitor signals are output from HD SDI OUT connector M. Text information can be superimposed onto outputs from this connector. Monitor output can be selected using the web menu.

Note

When outputting signals that are input to this unit, a delay of 1 or 2 lines may occur.

❺ AUDIO/INTERCOM connector

Connects to analog audio equipment and intercom systems.
The AUDIO/INTERCOM and TALLY/GPIO connectors are both 25-pin D-sub connectors. Be sure to check the labels to avoid incorrect connections.

❻ MAIN connector

This is a network connector that supports 1000BASE-T. Video signals and control signals are transmitted between multiple units of this device via a gigabit network.
This single connector has two IP addresses.

Notes

- Always connect to a 1000BASE-T network. The unit will not operate with other network types.
- Connect the unit using a CAT5e LAN cable or above.

❼ CONTROL connector

This is a network connector that supports 100BASE-TX. Connect a computer to this connector, and use it to configure settings for this unit via the web menu. If you do not need to display or operate the web menu, this connection is not necessary.
Video signals cannot be transmitted from this connector.

❽ TALLY/GPIO connector

Inputs/outputs tally signals or GPIO signals.

❾ DC IN connector

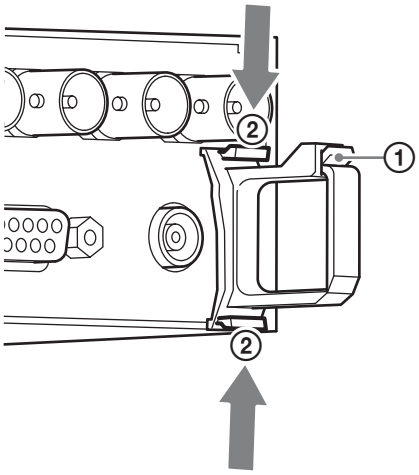
Connects to the supplied AC adapter.

Note

For safety, use only the AC adapter supplied with this unit.

❿ Clamp attachment point

Attach the supplied clamp here. Open the tab (①) to pass the power cable through the clamp.
To remove the clamp, push the tabs (②) in the direction of the arrows.



Settings

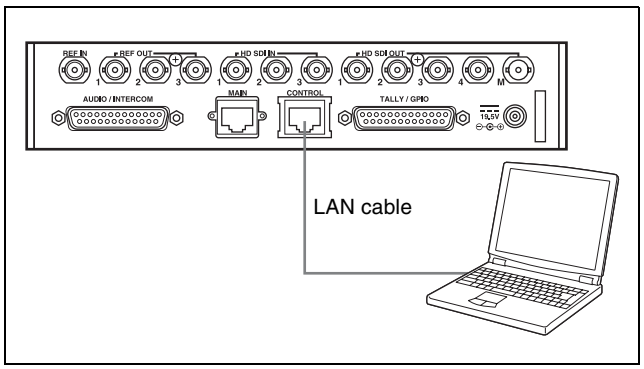
Configuring Settings

Perform the following to configure settings.

1. Connecting the computer (required)
2. Changing the password
3. Network settings (required)
4. Format settings (required)
5. Video transmission settings (required)
6. Synchronization settings (required)
7. Transmission rate settings (required)
8. Audio signal settings (required)
9. Tally signal settings (required)
10. GPIO settings (required)
11. Date and time settings
12. Changing the web menu title
13. Backing up and restoring settings
14. Importing and exporting settings
15. Verifying settings
16. Verifying the network environment

1. Connecting the computer

A computer can be connected to this unit's CONTROL connector using a LAN cable (either straight or cross).



Open a web browser on the computer, and enter "http://192.168.0.3" (or an amended IP address) in the address field.
The web menu used to configure this unit appears.

Note

When configuring settings, be sure to click the [Apply] button after configuring settings in each web menu page. If you switch to a different page or close the web browser without clicking the [Apply] button, the settings will not be applied.

The factory settings for this unit's CONTROL connector are as follows.

IP address: 192.168.0.3
Subnet mask: 255.255.255.0
Default gateway: 192.168.0.253

The network settings can be checked via the [Status] page of the web menu or via the text information superimposed on the monitor output.

2. Changing the password

User names and passwords can be changed on the [Others] page.
Password entry is required to display pages other than the [Status] page and [Operator] page. The factory default user name and password are as follows.

User name: Users
Password: NXL-IP55

3. Network settings

The network settings are configured on the [Network] page.
Settings must be configured for the MAIN connector network, which transmits the main line signal, and the CONTROL connector network, which connects to the computer used to setup this unit.

MAIN connector settings

These are configured under [Main Port Configuration] on the [Network] page.
Although it is one connector, it has two IP addresses – Main 1 and Main 2. When you configure the IP address for Main 1, a sequential IP address is configured for Main 2 automatically. Make sure that the IP addresses do not overlap with other devices.

- [Host IP Address (1/2)]: Enter the IP address for Main 1.
- [Host IP Address (2/2)]: This is configured automatically when you enter an address for [Host IP Address (1/2)]. This cannot be modified.
- [Subnet Mask]: This setting is the same for Main 1 and Main 2.
- [Destination IP Address (1/2)]: Enter the Main 1 IP address of the other connected NXL-IP55 unit (i.e., the connection destination).
- [Destination IP Address (2/2)]: This is configured automatically when you enter an address for [Destination IP Address (1/2)]. This cannot be modified.
- [Destination Subnet Mask] / [Gateway]: Enter the subnet mask of the partner unit's MAIN connector and the gateway of the local unit when operating between different segments. This item is enabled when you select the [Main Port Gateway] checkbox in the [Others] page and click [Apply].
- [Speed]: Displays the connection speed.
- [Stream Mode]: Set to "Multicast" if using the PC application software (optional), or set to "Unicast" otherwise.

Notes

- In Multicast mode, multicast packets are sent from the switch to all ports, which may affect communication on other ports. In order to avoid this, use the IGMP snooping function and IGMP query function of the switch to monitor traffic, or take other

measures such as segmenting the network connected to the MAIN connector and the network with the CONTROL connector using VLANs.
  - When [Main Port Gateway] is enabled under [Function Enable] in the [Others] page, operation in Multicast mode is disabled.

- [Multicast Address]: If "Multicast" is configured in [Stream Mode], set the IP addresses. Six addresses are required. Setting one address automatically sets the remaining five addresses in sequence. Set corresponding addresses on the connected devices. If "Unicast" is configured in [Stream Mode], no entry is required.
- [Register IP Address]: If a computer running the PC application software (optional) is connected, enter the IP address of the computer. Set [Stream Mode] to "Multicast" to configure this parameter. The required address is the IP address of the computer connected to the same network segment as the MAIN connector of the unit. IP addresses for up to eight computers can be configured.

CONTROL connector settings

These are configured under [Control Port Configuration] on the [Network] page.

- [DHCP]: Select whether to use DHCP. When using DHCP, the IP address allocated to the unit can be monitored using character information superimposed on the monitor output.
- [IP Address], [Subnet Mask], [Default Gateway]: Configure these if [DHCP] is disabled.

Note

When specifying IP addresses for the MAIN connector and the CONTROL connector, do not use multicast addresses, broadcast addresses, or other special reserved addresses.

4. Format settings

Select the image format for transfers under [Video Format] in the [Structure] page.

5. Video transmission settings

The direction of the video's main line signal and the number of transceiver channels are configured under [Transmission Settings] on the [Structure] page.

- [Main Video Direction]: Select [Transmitter] for the camera transmitting main line signals, and [Receiver] for the video router receiving the signals.
  On the Receiver side, the phases of the input SDI signals and the SDI signals sent from the Transmitter will match.
  On the Transmitter side, the phases of the input SDI signals and the SDI signals sent from the Receiver will not match (when [Frame Synchronizer] is [OFF]).
  Selecting the [Transmitter] and [Receiver] establishes a pair. Communication will not be possible if both sides are set identically.
- [Structure]: Configure the number of transmitter/receiver channels. The number of channels for the Transmitter and the Receiver should be inverted.
  For example, in a 3-camera system with one return channel, specify [3Transmit 1Receive] for the cameras and [1Transmit 3Receive] for the video router. Alternatively, if [3Transmit 1Receive] is specified, specify [1Transmit 3Receive] for the partner device. If [2Transmit 2Receive] is specified, specify [2Transmit 2Receive] again for the partner device.
  If "1080/59.94P (Dual Link)" or "1080/50P (Dual Link)" is selected in [Video Format], [Structure] is fixed to "2Transmit 2Receive" and Dual Link 1 operates in bidirectional transfer mode. Connect the Link-A input to HD SDI IN connector 1, and the Link-B input to HD SDI IN connector 2. The HD SDI IN 3 connector is disabled. Connectors HD SDI OUT 1 and 2 are grouped, as are connectors HD SDI OUT 3 and 4. Link-A is output from connectors HD SDI OUT 1 and 3, and Link-B is output from connectors HD SDI OUT 2 and 4.

6. Synchronization settings

Configure synchronization between transmission devices.
Selection of whether a device is the Leader or Follower in regards to the synchronization signal is performed under [Network GenLock] on the [Structure] page.
Select [Leader] for the transmitting device, and [Follower] for the subordinate device. Transmission is not possible between two Leader devices or two Follower devices.

Next, select the synchronization signal to be input under [Reference in] on the [I/O] page.

- [Source]: Select either the input signal from the REF IN connector or from HD SDI IN connector 1 to be the synchronization signal.
- [Format]: When [Reference in] is selected for [Source], select [HD] (HD 3-value sync) or [SD] (SD sync).
- [V Phase]: Enter this unit's vertical phase for the input synchronization signal.

The input signal must be in phase with this unit. However, an unsynchronized signal can be input if there is only one channel. In such cases, use the frame synchronizer. For details, see *"Settings when using a frame synchronizer" on page 18*.

The synchronization signal to be output from the REF OUT connector is configured under [Reference out] on the [I/O] page.

- [Format]: Select [HD] (HD 3-value sync), [SD (BB)], or [SD (SYNC)] (SD sync) as the synchronization signal to be output.
- [V Phase]: Enter this unit's vertical phase for the output synchronization signal.

Note

Configure the [Reference in] and [Reference out] settings for both the NXL-IP55 Leader and Follower units.

7. Transmission rate settings

The transmission rate for video signals is configured under [Video Code Rate] on the [Structure] page. Configure identical settings for both the NXL-IP55 sender and receiver units. Configuring a high rate enables high-resolution images, but requires a large transmission band.

Note

Lower rates are using for monitoring mode. Use after checking the image quality.

When the [Disable] checkbox is selected, that channel will not be used for transmission. If the transmission band is small, selecting the [Disable] checkbox for unnecessary channels will secure the required bandwidth.

8. Audio signal settings

Transmission channel settings

The audio signal to be transmitted is selected under [Audio Select] on the [Structure] page.
Select the checkboxes of the channels you want to use for transmission. Up to five boxes (10 channels) can be selected (or up to 8 channels in the same direction). For the intercom, 1 channel each is used for the round trip. When both the [ENG] and [PROD] checkboxes are selected, 2 channels each are used for the round trip.

Audio signal settings

Audio signals to be input/output are configured on the [I/O] page.

- [Embedded Audio Enable]: Select whether to embed and output the audio signal on the HD-SDI output signal. The audio signal is output when this checkbox is selected.
- [Analog Audio Direction]: Select whether to use the audio channel of the AUDIO/INTERCOM connector for input or for output.
- [Audio Source Select]: Select the audio signal embedded on the SDI signal or the signal input from the AUDIO/INTERCOM connector as the audio signal to be transmitted.

Intercom settings

The intercom channel to be used is selected under [Audio Select] on the [Structure] page.

- [Intercom]: [ENG] (engineer line) and [PROD] (producer line) can be selected. [PROD] cannot be selected by itself.

Next, select the intercom system to be used under [Intercom Interface] on the [I/O] page.

- [Intercom Interface]: Select the interface for the intercom system.
- [Termination]: Select this checkbox when you want to specify this unit as the termination for each intercom channel.

9. Tally signal settings

The transmission direction of a tally signal is selected under [Signal Direction] on the [Structure] page.

- [Tally]: Select [Transmitter] for the tally signal transmitter, and [Receiver] for the receiver. The transmission method cannot be changed on an individual basis.

Next, specify the interface for the input tally signal under [Tally Input] on the [I/O] page.

- [Tally Input]: Select [Contact] or [Power (TTL)]. Output is fixed at [Contact].

10. GPIO settings

The transmission direction of the GPIO signal is specified under [Signal Direction] on the [Structure] page. GPIO signals can be transmitted in two groups of four, and the transmission direction can be specified for each group.

- [GPIO Group 1], [GPIO Group 2]: Specify the transmission direction for each group. Select [Transmitter] for the transmitter and [Receiver] for the receiver.

11. Date and time settings

The region and time settings are configured under [Date and Time] on the [Others] page.

Note

The clock settings are stored via the unit's secondary internal backup battery. If the unit is turned on for only a short duration after the power has been left off for a prolonged period (e.g., when using the unit for the first time), the clock settings may not be retained. However, the date and time settings are only used for the log function. Even if the settings are incorrect, the unit will operate properly.

12. Changing the web menu title

The title that appears when the web menu is displayed in a web browser can be changed under [Device Name] on the [Others] page. Be sure to specify a name that can be distinguished from the other devices. Up to 64 alphanumeric characters can be entered.

13. Backing up and restoring settings

Configurations can be backed up and restored under [Setting Restore] on the [Others] page.

- [Create a System Restore point]: Select this checkbox and click the [Create] button to back up the configurations. The current setting configurations will be saved as the restore point. When you perform backup, any previously backed-up content will be disabled.
- [Undo System Changes with System Restore]: Select this checkbox and click the [Restore] button to restore the configurations that were previously saved as the restore point.

- [Undo System Changes with Default Settings]: Select this checkbox and click the [Default] button to return the configurations to their default settings.

14. Importing and exporting settings

The settings can be saved as a configuration file on a computer using [Export] on the [Others] page. Click the [Export] button to display the save file dialog. Enter a file name and save.
A saved configuration file can be loaded using [Import] on the [Others] page. Click [Browse…] to display the import file dialog, and select a configuration file.

15. Verifying settings

Setting configurations can be verified under [System Status] on the [Status] page.
If the MAIN connector of a partner NXL-IP55 unit is connected to the network, any inconsistencies between the units' configurations will be displayed here.

16. Verifying the network environment

An independent and secure network with low latency and sufficient bandwidth is required to transmit video with this unit. You can verify whether the network you want to use fulfills the transmission requirements using [Network Test] on the [Network] page.
Connect to the partner NXL-IP55 unit via the network, configure the network settings, and then start the test.

1 Open the [Network] page.

2 Select the [Test mode] checkbox in [Network Test].

Select the checkboxes for both the local unit and the partner unit.

3 Click the [Run] button.

The test starts. The test items will differ depending on the video transmission settings, so be sure to perform the test on both the local unit and the partner unit.

Notes

- Check that the network settings and video transmission settings are configured properly on both the local and partner units before performing the test.
- The [Test mode] checkboxes must be selected for both the local and partner units. Proper test results cannot be obtained if both the checkboxes are not selected.
- Normal video transmission is not possible while the [Test mode] checkboxes are selected. During the test, a video used to verify the network will be output to all streams. When the test is complete, be sure to clear the [Test mode] checkboxes for both the local and partner units.

Test items and results display

The following items are checked, and the results will be displayed as "Pass," "Failed," or "Borderline."

Item	Description
Physical link	Test results for the MAIN connector's physical interface. **Pass:** 1000BASE-T connection established properly. **Failed:** 1000BASE-T connection is not established properly, or cable is not connected.
ICMP Echo/ Reply	Test result for the MAIN connector's IP address and ICMP echo response on the partner unit. **Pass:** A response to the ICMP echo sent to the partner unit was properly obtained. **Failed:** There was no response to the ICMP echo sent to the partner unit, or the ICMP echo failed to be sent.
Network Genlock	Network synchronization status when the tested unit is a Follower. **Pass:** Network Genlock is operating properly, and the unit is locked to the Leader. **Failed:** The unit is not locked to the Leader. **Note** When the tested unit is a Leader, this item is not tested. Verify the status on the Follower side.
Packet delay	Average delay time for received packets when the tested unit is a Follower. **Pass:** The network latency meets the unit's transmission requirements. **Borderline:** The network latency barely meets the unit's transmission requirements. **Failed:** The network latency does not meet the unit's transmission requirements. **Note** When the tested unit is a Leader, this item is not tested. Verify the status on the Follower side.
Packet delay jitter	Difference between the shortest delay and longest delay for received packets (i.e., variation). **Pass:** The network latency variation meets the unit's transmission requirements. **Borderline:** The network latency variation barely meets the unit's transmission requirements. **Failed:** The network latency variation does not meet the unit's transmission requirements. **Note** When the tested unit is a Leader, this item is not tested. Verify the status on the Follower side.

Item	Description
Packet loss	Number of received video packet errors and number of packets lost during the test, and the total number of errors and lost packets since the unit was turned on. **Pass:** Errors and packet loss did not occur during the test, and the unit meets the transmission requirements. **Failed:** Packet loss occurred during the test, or invalid packets that could not be corrected via the unit's error correction function were received. (Invalid packets are counted as lost packets.)
Throughput (informative)	Bit rate of the video packets received during the test (reference value), and the total byte count of the received packets. **Pass:** The video bit rate during the test was equal to or higher than the bit rate of the test video. **Failed:** The video bit rate during the test was lower than the bit rate of the test video.

Input/Output Phases for HD-SDI Signals

This unit has phase requirements for input signals, and proper transmission is not possible unless these requirements are met.

Input phases

When using [Reference in] > [V Phase] and [Reference out] > [V Phase] set to 0 on the [I/O] page of the web menu as a basis, the Leader for network synchronization must meet one of the following conditions, ① to ③.

① The input phases of all the HD-SDI signals are synchronized with the REF IN signal, and the input phases are synchronized within the –0.3H (fast video) to +2.0H (slow video) range.
② The HD-SDI input signals are all synchronized with matching phases, but the input phases are outside of the –0.3H to +2.0H range.
③ Under condition ① or condition ②, only one of the inputs is not synchronized or its input phase is outside of the –0.3H to +2.0H range.

In addition, the Follower for network synchronization must meet one of the following conditions, ④ to ⑥.
④ The input phases of all the HD-SDI signals are synchronized with the REF OUT signal, and the input phases are synchronized within the –0.3H to +2.0H range.
⑤ The HD-SDI input signals are all synchronized with matching phases, but the input phases are outside of the –0.3H to +2.0H range.
⑥ Under condition ④ or condition ⑤, only one of the inputs is not synchronized or its input phase is outside of the –0.3H to +2.0H range.

Note

Operation is not possible under condition ⑥ when the video format is 1080P.

Settings for condition ①
- Set [Reference in] > [V Phase] on the [I/O] page to 0.
- Set [Frame Synchronizer] on the [Structure] page to [OFF].

Settings for condition ②
- Adjust input equipment, and configure the phases so that they meet condition ①. Alternatively, configure [Reference in] > [V Phase] on the [I/O] page to match the amount of shift and meet condition ①.
- Set [Frame Synchronizer] on the [Structure] page to [OFF].

Settings for condition ③
- Refer to the settings for conditions ① and ②, and configure the phase.
- Input the unsynchronized signal to SDI IN connector 1, and set [Frame Synchronizer] > [SDI in 1] on the [Structure] page to [ON].

Settings for condition ④
- Set [Reference out] > [V Phase] on the [I/O] page to 0.
- Set [Frame Synchronizer] on the [Structure] page to [OFF].

Settings for condition ⑤
- Adjust input equipment, and configure the phases so that they meet condition ④. Alternatively, adjust the phase of the input equipment using [Reference out] > [V Phase] on the [I/O] page and meet condition ④.
- Set [Frame Synchronizer] on the [Structure] page to [OFF].

Settings for condition ⑥
- Refer to the settings for conditions ④ and ⑤, and configure the phase.
- Input the unsynchronized signal to SDI IN connector 1, and set [Frame Synchronizer] > [SDI in 1] on the [Structure] page to [ON].

Note

Delays will occur if you use a frame synchronizer.

Output phases

When using [Reference in] > [V Phase] and [Reference out] > [V Phase] set to 0 on the [I/O] page of the web menu as a basis, the output phase of the unit's HD-SDI signal will be as follows.

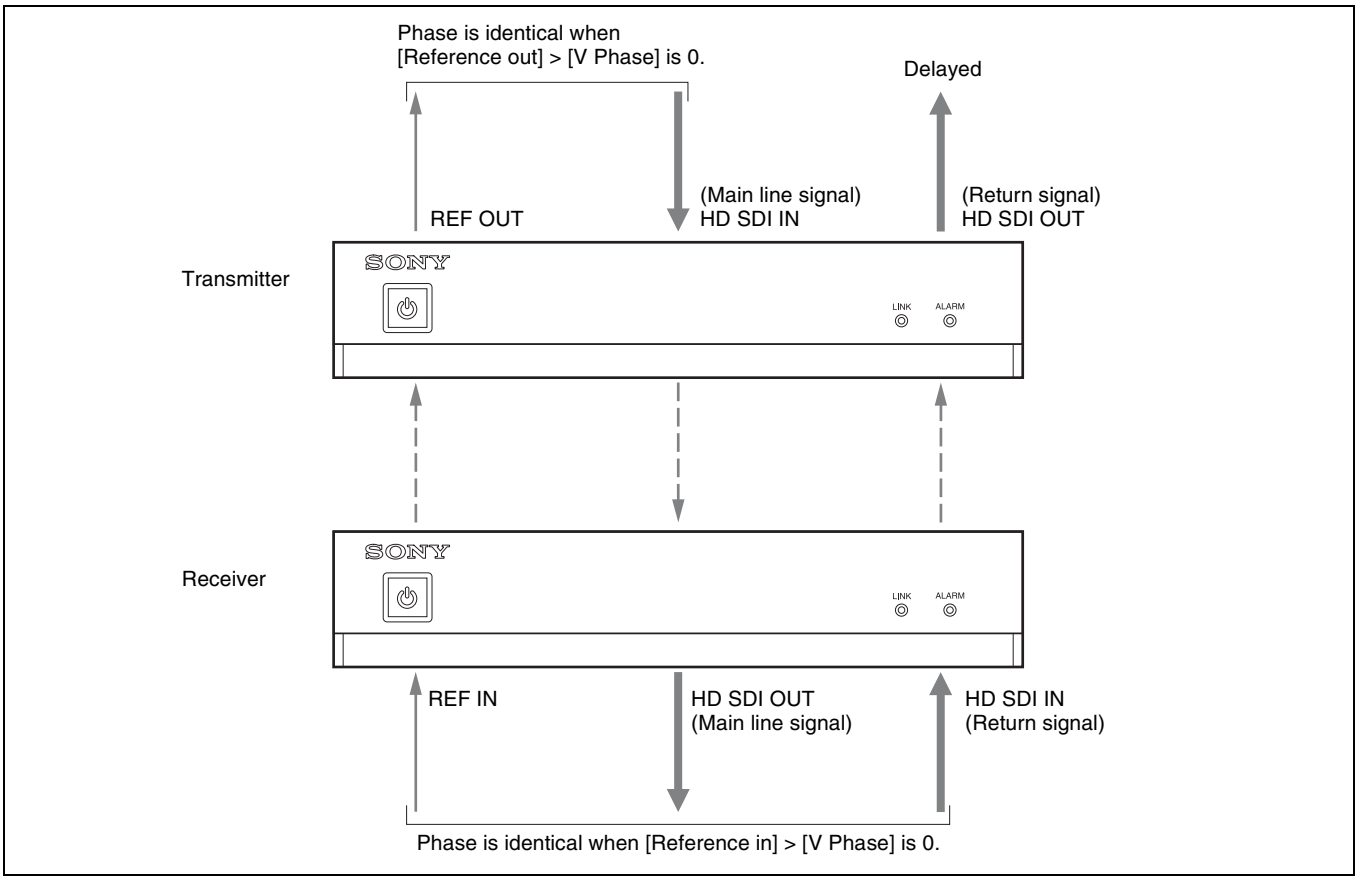
When [Main Video Direction] is [Receiver]
A signal that matches the REF IN signal will be output.

When [Main Video Direction] is [Transmitter]
The signal will be delayed in relation to the REF OUT signal. The amount of delay will increase the more the network latency increases.

If you want to synchronize the output phase of the Follower with a different synchronization signal, input that signal to the REF IN connector, and set [Frame Synchronizer] > [ALL] on the [Structure] page of the web menu to [ON].

Note

Delays will occur if you use a frame synchronizer.

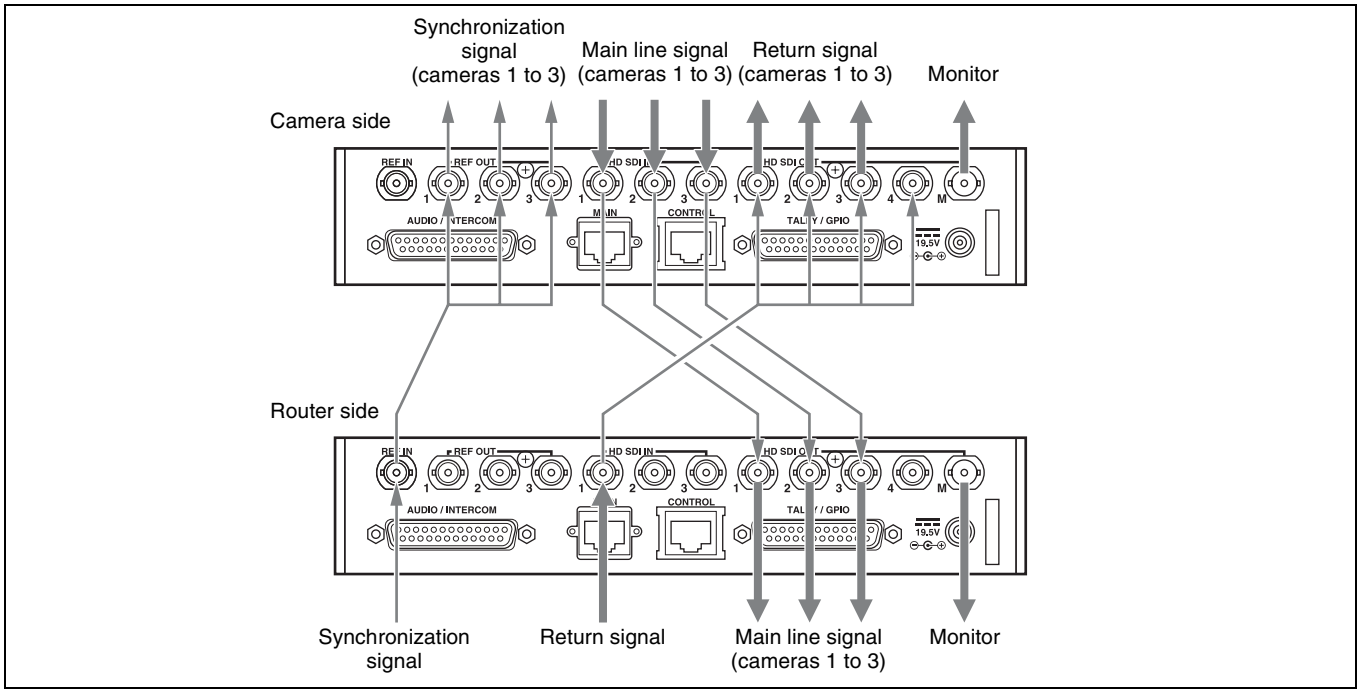


Settings Examples

Settings for a 3-camera system with one return channel

The following indicates configuration examples for the web menu and the input/output of each connector.

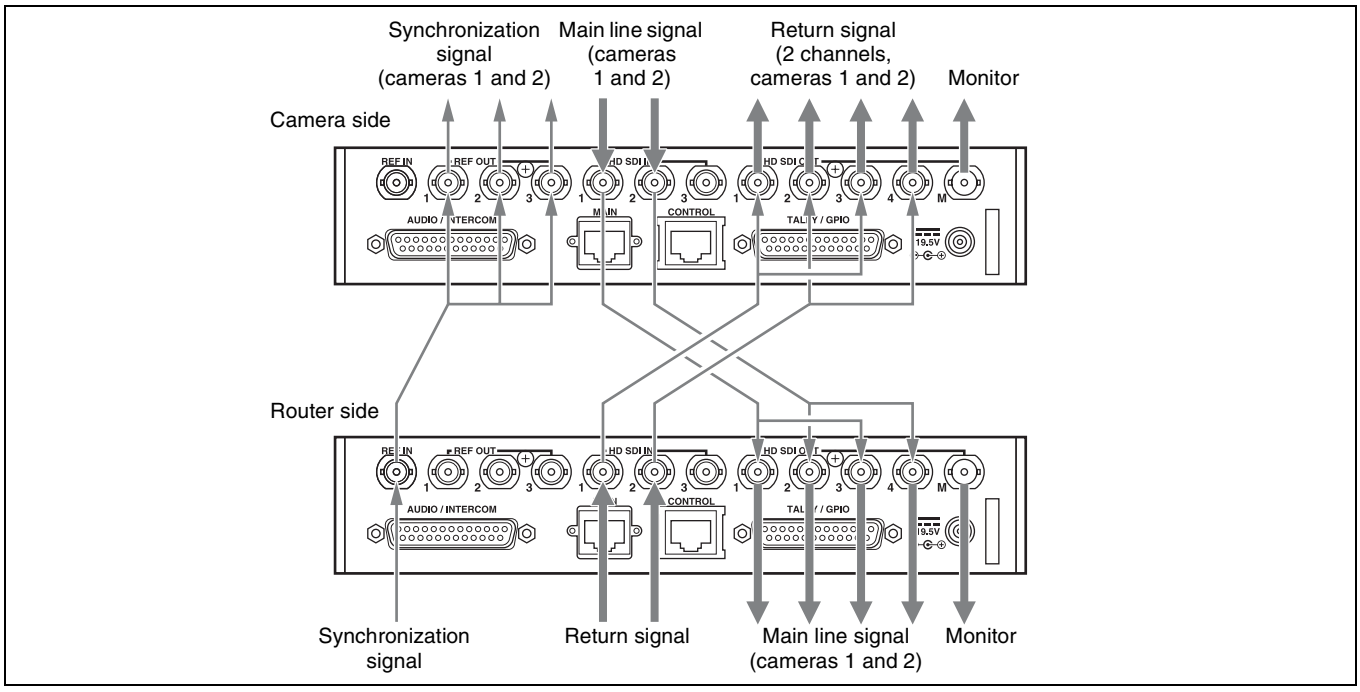
	Main Video Direction	Structure	Network GenLock
Camera	Transmitter	3Transmit 1Receive	Follower
Video router	Receiver	1Transmit 3Receive	Leader



Settings for a 2-camera system with two return channels

The following indicates configuration examples for the web menu and the input/output of each connector.

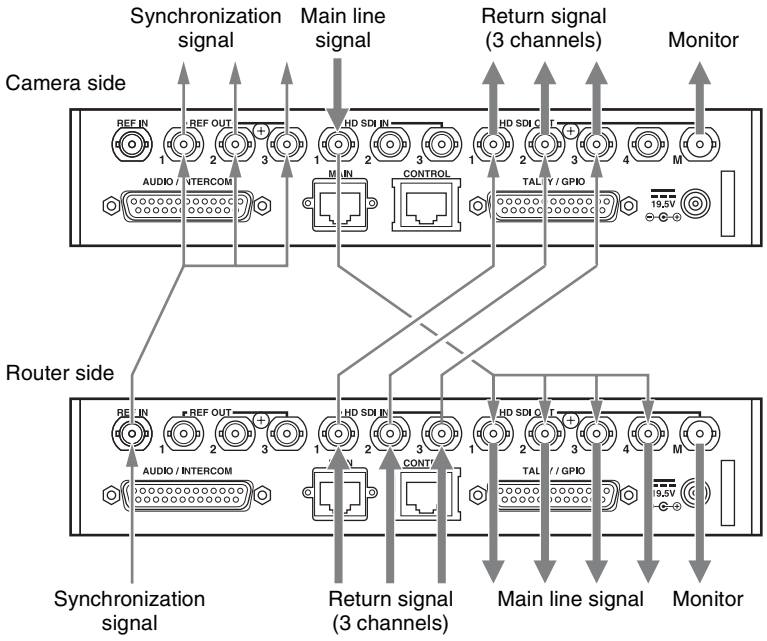
	Main Video Direction	Structure	Network GenLock
Camera	Transmitter	2Transmit 2Receive	Follower
Video router	Receiver	2Transmit 2Receive	Leader



Settings for a 1-camera system with three return channels

The following indicates configuration examples for the web menu and the input/output of each connector.

	Main Video Direction	Structure	Network GenLock
Camera	Transmitter	1Transmit 3Receive	Follower
Video router	Receiver	3Transmit 1Receive	Leader



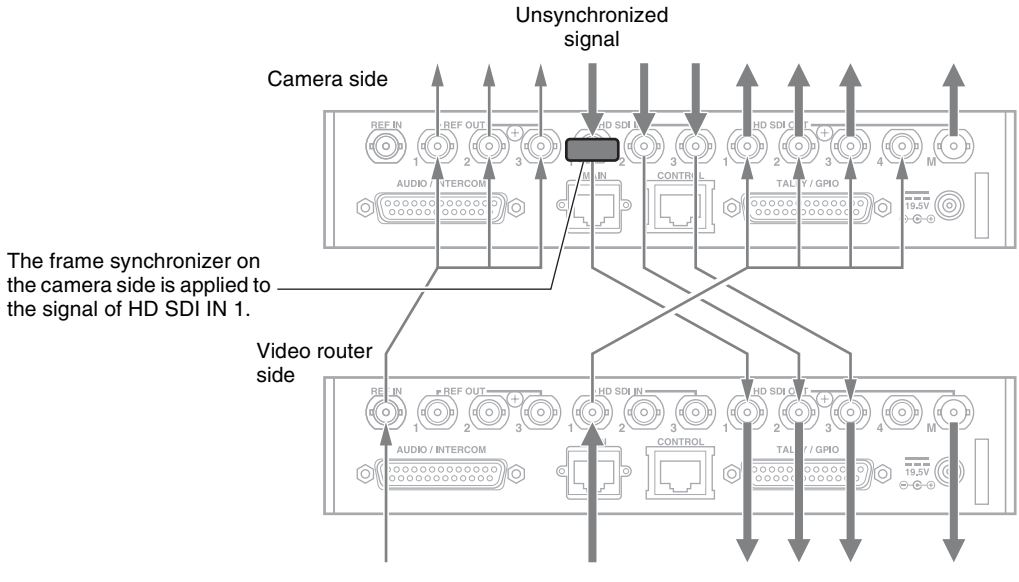
Settings when using a frame synchronizer

When connecting a signal that is not synchronized, you can synchronize the signal by using a frame synchronizer. Only HD SDI IN connector 1 can receive the unsynchronized signal. Multiple unsynchronized signals cannot be received.

Connection example for an unsynchronized video signal

The following table indicates configuration examples for the web menu.

	Main Video Direction	Structure	Network GenLock	Frame Synchronizer
Camera	Transmitter	3Transmit 1Receive	Follower	SDI in 1
Video router	Receiver	1Transmit 3Receive	Leader	OFF

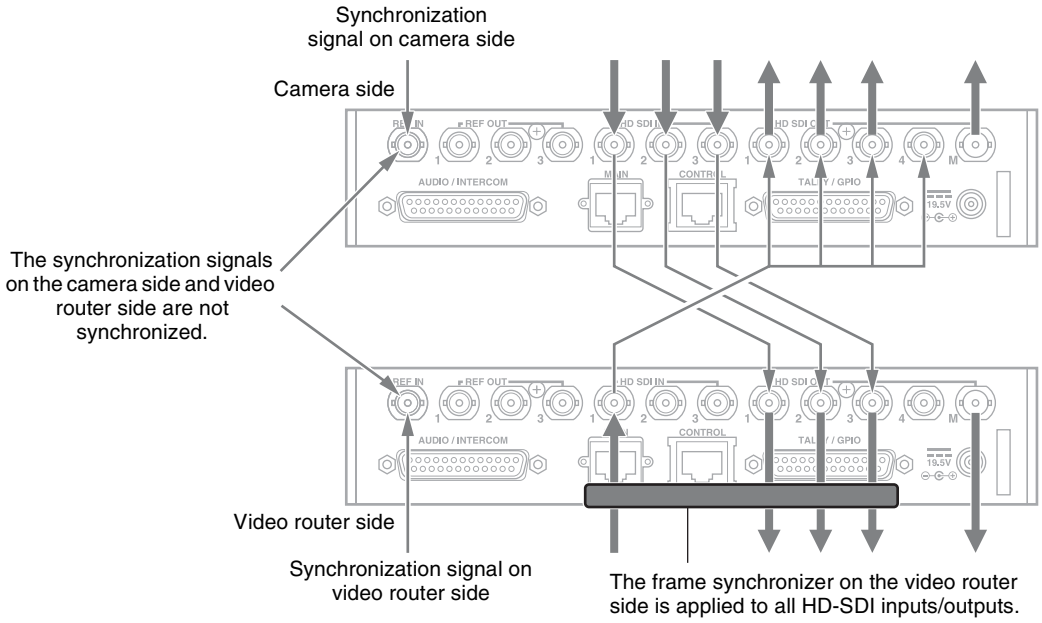

Unsynchronized signal
Camera side
The frame synchronizer on the camera side is applied to the signal of HD SDI IN 1.
Video router side

Connection example for when the transmitter and receiver are not synchronized

The following table indicates configuration examples for when two units are not synchronized.

Set [Network GenLock] to [Follower], and configure [ALL] for [Frame Synchronizer].

	Main Video Direction	Structure	Network GenLock	Frame Synchronizer
Camera	Transmitter	3Transmit 1Receive	Leader	OFF
Video router	Receiver	1Transmit 3Receive	Follower	ALL


Synchronization signal on camera side
Camera side
The synchronization signals on the camera side and video router side are not synchronized.
Video router side
Synchronization signal on video router side
The frame synchronizer on the video router side is applied to all HD-SDI inputs/outputs.

Operation

Starting Video Transmission

There are two ways to start video transmission.

Automatic connection

When both NXL-IP55 units connected via a network start up, they automatically connect and transmission starts. To enable automatic connection, select the [Auto Connection] checkbox under [Connection] on the [Operator] page of the web menu.

Manual connection

Connection is established via manual user operations.

1. Open the [Operator] page in the web menu, clear the [Connection] > [Auto Connection] checkbox, and then click the [Apply] button.
2. Check that the other NXL-IP55 unit has started, and then click the [Connect] button on the [Operator] page.

Outputting Color Bars and Tone Signal

Color bars and tone signal can be output to each HD SDI OUT connector. Settings are configured using [Color Bars] on the [Operator] page.

- [Color Bars ON]: Place a check mark in [SDI in 1] to [SDI in 3] to enable transfer of color bars. Color bars are output from the output connectors of the unit and the partner unit corresponding to the selected input signal. To switch the output connector signals to color bars, place a check mark in [SDI out 1] to [SDI out 4] or [Monitor out].
- [Color Bars Select]: Select the type of color bars you want to output.
- [Tone Level]: Set the level of the tone signal added to the color bars. The setting is in dBFS units. Select "–∞" to disable the tone signal.

When finished changing settings, click the [Apply] to apply the settings.

Displaying the Status

The status of this unit can be output to the web menu or to a monitor display.

Web menu display

The status of the unit is displayed on the [Status] page of the web menu. Password entry is not required to display the [Status] page. To update the displayed content, click the [Refresh] button.

Monitor display

This status of this unit can be displayed on an external monitor connected to HD SDI OUT connector M. To display the status, select the [Character Display] checkbox under [Monitor out] on the [Operator] page of the web menu.

Note

Even if the checkbox is not selected, the IP address of the CONTROL connector will be displayed at startup. This allows you to verify settings, even if you forgot the unit's IP address.

Menus

Menu Structure

The settings for this unit are configured via the web menu.

The web menu contains the following pages.

After configuring settings in each page, click the [Apply] button to apply the settings. If you switch to a different page or close the web browser without clicking the [Apply] button, the settings will not be applied.

Note

To view the most recent status, perform a force reload on the web browser. If a force reload is not performed, old information may be displayed.

Page	Description
Status	Displays the status of the unit.
Operator	Allows you to operate the unit.
I/O	Allows you to configure the I/O of the unit. As this unit may not function properly depending on settings, do not open this page during operations. Password entry is required to open this page.
Structure	Allows you to configure the relationship between this unit and the other NXL-IP55 unit (i.e., connection destination). As this unit may not function properly depending on settings, do not open this page during operations. Password entry is required to open this page.
Network	Allows you to configure the network accessed by the unit. As this unit may not function properly depending on settings, do not open this page during operations. Password entry is required to open this page.
Others	Allows you to configure other settings for the unit. As this unit may not function properly depending on settings, do not open this page during operations. Password entry is required to open this page.

Menu legend

- Underlined values indicate the default settings.
- The “Target” column indicates whether the setting can be imported and exported.

[Status] Page

Item		Description
	Refresh	Click this to update the displayed information.
	Automatic Updating	Automatically updates the display periodically. This is disabled under default settings.
Table of Contents and Diagnosis		Displays a table of contents for items and status information.
1. GenLock		Displays the GenLock status. Click this to jump to a detailed display.
2. Video Input		Displays the video input status. Click this to jump to a detailed display.
3. Audio Input		Displays the audio input status. Click this to jump to a detailed display.
4. System Status		Displays the system configuration status. Click this to jump to a detailed display.
5. Stream		Click this to jump to a status display for the transmitted content.
6. Video Out Source		Click this to jump to a status display for the video output.
7. Analog Audio out		Click this to jump to a status display for the analog audio configurations.
8. Network Configuration		Click this to jump to a status display for the network configurations.
9. Network Conditions		Displays the network status. Click this to jump to a detailed display.
10. Device Status		Displays self-diagnosis results. Click this to jump to a detailed display.
11. Device Information		Click this to jump to a device information display.

Item	Description
1. Gen Lock	
Source	Displays the input source of the synchronization signal.
Status	Displays the synchronization status.
Reference out Signal	Displays the reference output type.
Frame Synchronizer	Displays the operating mode of the frame synchronizer.
2. Video Input	
Input Phase	
SDI in 1	Displays the phase and status of the signal input to HD SDI IN connector 1.
SDI in 2	Displays the phase and status of the signal input to HD SDI IN connector 2.
SDI in 3	Displays the phase and status of the signal input to HD SDI IN connector 3.
3. Audio Input	
Audio Control Packet	
SDI in 1	Displays the sampling rate of the HD SDI IN connector 1 audio control packets, asx (synchronous/asynchronous audio), and ACT (active channel).
SDI in 2	Displays the sampling rate of the HD SDI IN connector 2 audio control packets, asx (synchronous/asynchronous audio), and ACT (active channel).
SDI in 3	Displays the sampling rate of the HD SDI IN connector 3 audio control packets, asx (synchronous/asynchronous audio), and ACT (active channel).
4. System Status	
Main Video Direction	Displays the transmission direction of the main line signal.
Structure	Displays the transmission mode.
Network GenLock	Displays the Leader/Follower of network synchronization.
Video Format	Displays the format of the video signal.
Signal Direction	
Tally	Displays the transmission direction of the tally signal.
GPIO Group 1	Displays the transmission direction of the GPIO Group 1 signal.
GPIO Group 2	Displays the transmission direction of the GPIO Group 2 signal.
Structure Settings	During the connection process, “OK” appears here when the settings on the partner unit’s [Structure] page are correct, and “Error” appears when any of the settings are not correct.
Network Settings	During the connection process, “OK” appears here when the settings on the partner unit’s [Network] page are correct, and “Error” appears when any of the settings are not correct.
Firmware Version	Displays version information if the firmware versions of the unit and partner device do not match.
5. Stream	
Video Stream	
Video Stream 1	Displays the video signal source of video stream 1.
Video Stream 2	Displays the video signal source of video stream 2.
Video Stream 3	Displays the video signal source of video stream 3.
Video Stream 4	Displays the video signal source of video stream 4.
Audio Stream	
Audio Stream 1,2	Displays the audio signal source of audio streams 1 and 2.
Audio Stream 3,4	Displays the audio signal source of audio streams 3 and 4.
Audio Stream 5,6	Displays the audio signal source of audio streams 5 and 6.
Audio Stream 7,8	Displays the audio signal source of audio streams 7 and 8.
Audio Stream 9,10	Displays the audio signal source of audio streams 9 and 10.

Item	Description
6. Video Out Source	
SDI out 1	Displays the signal output to HD SDI OUT connector 1.
SDI out 2	Displays the signal output to HD SDI OUT connector 2.
SDI out 3	Displays the signal output to HD SDI OUT connector 3.
SDI out 4	Displays the signal output to HD SDI OUT connector 4.
Monitor out	Displays the signal output to HD SDI OUT connector M.
7. Analog Audio out	
Analog out 1,2	Displays the signal output to Analog out 1,2.
Analog out 3,4	Displays the signal output to Analog out 3,4.
Analog out 5,6	Displays the signal output to Analog out 5,6.
8. Network Configuration	
Main Port	
Basic Settings	
Host IP Address(1/2)	Displays the first IP address and MAC address of the MAIN network.
Host IP Address(2/2)	Displays the second IP address and MAC address of the MAIN network.
Subnet Mask	Displays the subnet mask of the MAIN network.
Destination IP Address(1/2)	Displays the first IP address of the partner unit.
Destination IP Address(2/2)	Displays the second IP address of the partner unit.
Destination Subnet Mask	Displays the subnet mask of the partner unit's MAIN connector. This appears only when [Main Port Gateway] is enabled under [Function Enable] in the [Others] page.
Gateway	Displays the gateway of the MAIN connector. This appears only when [Main Port Gateway] is enabled under [Function Enable] in the [Others] page.
Stream Mode	Displays the stream mode.
Multicast Address (1 to 6)	Displays the multicast address.
Settings for Devices	
IP Address 1	Displays the IP addresses of computers connected to the MAIN connector network.
IP Address 2	
IP Address 3	
IP Address 4	
IP Address 5	
IP Address 6	
IP Address 7	
IP Address 8	
Control Port	
IP Address	Displays the IP address and MAC address of the CONTROL network.
Subnet Mask	Displays the subnet mask of the CONTROL network.
Default Gateway	Displays the default gateway of the CONTROL network.

Item			Description
9. Network Conditions			
	Main Port		
		Link Status	Displays the status of the link to the MAIN network.
		Link Speed	Displays the link speed of the MAIN network.
		Connection	Displays the connection status with the partner unit.
		Transmission Quality	Displays a line rating. This appears only on the Follower side.
		Packet Delay	Displays the average delay time for received packets. This appears only on the Follower side.
		Packet Jitter	Displays the difference between the shortest delay and longest delay for received packets. This appears only on the Follower side.
		Packet Loss	Displays the number of video packet errors and packet loss per ten seconds.
		Throughout (Informative)	Displays the bit rate of received video packets (reference value).
	Control Port		
		Link Speed	Displays the link speed of the CONTROL network.
		DHCP	Displays whether DHCP is enabled or disabled for the CONTROL network.
10. Device Status			Displays the status as [OK] if not a single error is detected. The following are examples of items that appear.
	Power Status (NET)		Displays the power supply status of the NET board.
	Power Status (AVP)		Displays the power supply status of the AVP board.
	FPGA1		Displays the FPGA1 status.
	FPGA2 (DY1)		Displays the FPGA2 status of the DY1 board.
	FPGA2 (DY2)		Displays the FPGA2 status of the DY2 board.
	FPGA2 (DY3)		Displays the FPGA2 status of the DY3 board.
	FPGA2 (DY4)		Displays the FPGA2 status of the DY4 board.
	FPGA3		Displays the FPGA3 status.
	Video Codec		Displays the status of the video codec device.
	Network Processor		Displays the status of the network processor.
	FAN		Displays the fan status.
11. Device Information			
	Model Name		Displays the model name of this unit.
	Serial Number		Displays the serial number of this unit.
	Firmware Version		Displays the version of this unit's firmware package.
		Refresh	Click this to update the displayed information.

[Operator] Page

Item			Description	Target
		Apply	Click this after modifying the settings to apply them.	
1. Connection				
	Auto Connection		Specifies whether to automatically connect the unit at startup. This is enabled under default settings.	Y
	Connect		When [Auto Connection] is disabled, this starts connection manually.	N

Item			Description	Target
2. Monitor out				
	Character Display		Specifies whether to embed text information on the output from HD SDI OUT connector M. This is enabled under default settings.	Y
	Output Select		Selects the video signal to be output from HD SDI OUT connector M. **SDI in 1:** Signal that corresponds to the input of HD SDI IN connector 1. **SDI in 2:** Signal that corresponds to the input of HD SDI IN connector 2. **SDI in 3:** Signal that corresponds to the input of HD SDI IN connector 3. **SDI out 1:** Signal that corresponds to the output of HD SDI OUT connector 1. **SDI out 2:** Signal that corresponds to the output of HD SDI OUT connector 2. **SDI out 3:** Signal that corresponds to the output of HD SDI OUT connector 3. **SDI out 4:** Signal that corresponds to the output of HD SDI OUT connector 4.	Y
3. Color Bars				
	Color Bars ON			
		SDI in 1	Switches the signal corresponding to the HD SDI IN connector 1 input to color bars with tone signal. This is disabled under default settings.	Y
		SDI in 2	Switches the signal corresponding to the HD SDI IN connector 2 input to color bars with tone signal. This is disabled under default settings.	Y
		SDI in 3	Switches the signal corresponding to the HD SDI IN connector 3 input to color bars with tone signal. This is disabled under default settings.	Y
		SDI out 1	Switches the output from HD SDI OUT connector 1 to color bars. This is disabled under default settings.	Y
		SDI out 2	Switches the output from HD SDI OUT connector 2 to color bars. This is disabled under default settings.	Y
		SDI out 3	Switches the output from HD SDI OUT connector 3 to color bars. This is disabled under default settings.	Y
		SDI out 4	Switches the output from HD SDI OUT connector 4 to color bars. This is disabled under default settings.	Y
		Monitor out	Switches the output from HD SDI OUT connector M to color bars. This is disabled under default settings.	Y
	Color Bars Select			
		Full / SMPTE	Selects the color bars type. **Full / SMPTE**	Y
		Moving	Specifies whether the color bars move. This is disabled under default settings.	Y
		Tone Level	Sets the audio level of the tone signal added to the color bars. **0 / –16 / –18 / –20 / –22 / –24 / –∞** (dBFS)	Y
4. Operation Manual				
	Language Select		Selects the language of the operation manual.	N
	View Operation Manual (PDF)		Click this to display the operation manual in the selected language.	N
5. License Information				
	View License Information		Displays detailed license information and a list of software packages.	N
		Apply	Click this after modifying the settings to apply them.	

[I/O] Page

Item		Description	Target
	Apply	Click this after modifying the settings to apply them.	
1. SDI out			
SDI out 1		Selects the signal to be output from each HD SDI OUT connector. The initial value for selectable signals differs depending on the [Transmission Settings] on the [Structure] page. **SDI in 1:** Outputs the signal that corresponds to the input of HD SDI IN connector 1. **SDI in 2:** Outputs the signal that corresponds to the input of HD SDI IN connector 2. **SDI in 3:** Outputs the signal that corresponds to the input of HD SDI IN connector 3. **Opposite SDI in 1:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 1. **Opposite SDI in 2:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 2. **Opposite SDI in 3:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 3. **–:** Outputs a black screen.	Y
SDI out 2			Y
SDI out 3			Y
SDI out 4			Y
2. Reference in			
Status		Displays the status of the synchronization signal. **No Detection:** The synchronization signal cannot be detected. **Locked:** Synchronized with specified synchronization signal. **Unlocked:** Not synchronized with specified synchronization signal.	N
Source		Selects the signal to be used as the synchronization signal. **Reference in:** Input signal from the REF IN connector. **SDI in 1:** Input signal from HD SDI IN connector 1.	Y
Format		Selects the format of the synchronization signal. **HD:** HD (3-value sync) **SD:** SD (sync or BB)	Y
V Phase		Specifies the vertical phase of this unit for the input synchronization signal. **–562 to 0 to +562** (for 1080 59.94i/29.97PsF/59.94P/50i/25PsF/50P) **–375 to 0 to +375** (for 720 59.94P/50P)	Y
3. Reference out			
Format		Selects the format of the synchronization signal output from the REF OUT connector. **HD:** HD (3-value sync) **SD (BB):** SD (BB) **SD (SYNC):** SD (sync)	Y
V Phase		Specifies the vertical phase of this unit for the output synchronization signal. **–562 to 0 to +562** (for 1080 59.94i/29.97PsF/59.94P/50i/25PsF/50P) **–375 to 0 to +375** (for 720 59.94P/50P)	Y
4. Embedded Audio Enable			
SDI out 1		Embeds audio on HD SDI OUT connector 1. This is enabled under default settings.	Y
SDI out 2		Embeds audio on HD SDI OUT connector 2. This is enabled under default settings.	Y
SDI out 3		Embeds audio on HD SDI OUT connector 3. This is enabled under default settings.	Y
SDI out 4		Embeds audio on HD SDI OUT connector 4. This is enabled under default settings.	Y
Monitor out		Embeds audio on HD SDI OUT connector M. This is enabled under default settings.	Y

Item		Description	Target
5. Analog Audio Reference Level			
	Analog 1,2	Selects the reference level for the AUDIO/INTERCOM connector's Analog 1 and 2 input/output. **–20 dBu** **0 dBu** **+4 dBu**	Y
	Analog 3,4	Selects the reference level for the AUDIO/INTERCOM connector's Analog 3 and 4 input/output. **–20 dBu** **0 dBu** **+4 dBu**	Y
	Analog 5,6	Selects the reference level for the AUDIO/INTERCOM connector's Analog 5 and 6 input/output. **–20 dBu** **0 dBu** **+4 dBu**	Y
6. Analog Audio Direction			
	Analog 1,2	Switches the input/output for the AUDIO/INTERCOM connector's Analog 1 and 2. **Input** **Output**	Y
	Analog 3,4	Switches the input/output for the AUDIO/INTERCOM connector's Analog 3 and 4. **Input** **Output**	Y
	Analog 5,6	Switches the input/output for the AUDIO/INTERCOM connector's Analog 5 and 6. **Input** **Output**	Y
7. Audio Source Select			
	SDI in 1	When [Analog Audio Direction] is set to [Input], this selects the audio signals that are transmitted with SDI in 1. **Embedded:** Audio signal embedded on the SDI signal. **Analog in 1,2:** Audio signal input from Analog 1 and 2 of the AUDIO/ INTERCOM connector. **Analog in 3,4:** Audio signal input from Analog 3 and 4 of the AUDIO/ INTERCOM connector. **Analog in 5,6:** Audio signal input from Analog 5 and 6 of the AUDIO/ INTERCOM connector.	Y
	SDI in 2	When [Analog Audio Direction] is set to [Input], this selects the audio signals that are transmitted with SDI in 2. **Embedded:** Audio signal embedded on the SDI signal. **Analog in 1,2:** Audio signal input from Analog 1 and 2 of the AUDIO/ INTERCOM connector. **Analog in 3,4:** Audio signal input from Analog 3 and 4 of the AUDIO/ INTERCOM connector. **Analog in 5,6:** Audio signal input from Analog 5 and 6 of the AUDIO/ INTERCOM connector.	Y
	SDI in 3	When [Analog Audio Direction] is set to [Input], this selects the audio signals that are transmitted with SDI in 3. **Embedded:** Audio signal embedded on the SDI signal. **Analog in 1,2:** Audio signal input from Analog 1 and 2 of the AUDIO/ INTERCOM connector. **Analog in 3,4:** Audio signal input from Analog 3 and 4 of the AUDIO/ INTERCOM connector. **Analog in 5,6:** Audio signal input from Analog 5 and 6 of the AUDIO/ INTERCOM connector.	Y

Item			Description	Target
8. Analog Audio out Select				
	Analog out 1,2		When [Analog Audio Direction] is set to [Output], this selects the signal source for Analog out 1,2. The selectable signals and the initial value differ depending on the [Transmission Settings] and [Video Format] on the [Structure] page. **SDI in 1:** Outputs the signal that corresponds to the input of HD SDI IN connector 1. **SDI in 2:** Outputs the signal that corresponds to the input of HD SDI IN connector 2. **SDI in 3:** Outputs the signal that corresponds to the input of HD SDI IN connector 3. **Opposite SDI in 1:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 1. **Opposite SDI in 2:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 2. **Opposite SDI in 3:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 3. **–:** Does not output audio.	Y
			Ch1,2 / Ch3,4: Selects whether to output Ch 1 and 2, or Ch 3 and 4.	Y
	Analog out 3,4		When [Analog Audio Direction] is set to [Output], this selects the signal source for Analog out 3,4. The selectable signals and the initial value differ depending on the [Transmission Settings] and [Video Format] on the [Structure] page. **SDI in 1:** Outputs the signal that corresponds to the input of HD SDI IN connector 1. **SDI in 2:** Outputs the signal that corresponds to the input of HD SDI IN connector 2. **SDI in 3:** Outputs the signal that corresponds to the input of HD SDI IN connector 3. **Opposite SDI in 1:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 1. **Opposite SDI in 2:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 2. **Opposite SDI in 3:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 3. **–:** Does not output audio.	Y
			Ch1,2 / Ch3,4: Selects whether to output Ch 1 and 2, or Ch 3 and 4.	Y
	Analog out 5,6		When [Analog Audio Direction] is set to [Output], this selects the signal source for Analog out 5,6. The selectable signals and the initial value differ depending on the [Transmission Settings] and [Video Format] on the [Structure] page. **SDI in 1:** Outputs the signal that corresponds to the input of HD SDI IN connector 1. **SDI in 2:** Outputs the signal that corresponds to the input of HD SDI IN connector 2. **SDI in 3:** Outputs the signal that corresponds to the input of HD SDI IN connector 3. **Opposite SDI in 1:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 1. **Opposite SDI in 2:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 2. **Opposite SDI in 3:** Outputs the signal that corresponds to the input of the partner unit's HD SDI IN connector 3. **–:** Does not output audio.	Y
			Ch1,2 / Ch3,4: Selects whether to output Ch 1 and 2, or Ch 3 and 4.	Y
9. Intercom Interface				
	4W / RTS/ Clear-Com		Selects the interface of the intercom system to be connected to the AUDIO/ INTERCOM connector. **4W / RTS / Clear-Com**	Y
	Termination			
		ENG	When the interface is set to [RTS] or [Clear-Com], this selects whether to terminate the ENG line. **ON:** Terminates the line. **OFF:** Does not terminate the line.	Y
		PROD	When the interface is set to [RTS] or [Clear-Com], this selects whether to terminate the PROD line. **ON:** Terminates the line. **OFF:** Does not terminate the line.	Y

Item	Description	Target
10. Tally Input		
Contact / Power (TTL)	Selects the interface when inputting tally signals. **Contact:** Select this when the interface is relay. **Power (TTL):** Select this when the interface is TTL level.	Y
Apply	Click this after modifying the settings to apply them.	

[Structure] Page

Item	Description	Target
Apply	Click this after modifying the settings to apply them.	
1. Transmission Settings		
Main Video Direction	Specifies the basic operating mode of this unit. **Transmitter:** Select this when sending the main line signal from this unit. **Receiver:** Select this when receiving the main line signal on this unit.	Y
Structure	Selects the number of main line and return signal transceivers. Fixed to “2Transmit/2Receive” if “1080/59.94P (Dual Link)” or “1080/50P (Dual Link)” is selected for [Video Format]. **3Transmit/1Receive:** Three main line signals and one return signal. **2Transmit/2Receive:** Two main line signals and two return signals. **1Transmit/3Receive:** One main line signal and three return signals.	Y
2. Network GenLock		
Leader / Follower	Selects the direction of synchronization via a network. **Leader:** Generates the synchronization signal. **Follower:** Synchronizes with the synchronization signal.	Y
3. Video Format		
1080/59.94i / 1080/50i / 720/59.94P / 720/50P / 1080/29.97PsF / 1080/25PsF / 1080/59.94P (Dual Link) / 1080/50P (Dual Link)	Selects the format of the video to be transmitted. **1080/59.94i** **1080/50i** **720/59.94P** **720/50P** **1080/29.97PsF** **1080/25PsF** **1080/59.94P (Dual Link)** **1080/50P (Dual Link)**	Y
4. Video Codec Rate		
(Stream 1) [a)]	Selects the video transmission rate of the corresponding stream. Selecting [High] enables high-resolution images, but requires a large transmission band. **High:** Transmits high-resolution video. This requires a large transmission band. **Low:** Transmits low-resolution video.	Y
(Stream 2) [a)]	Selects the video transmission rate of the corresponding stream. Selecting [High] enables high-resolution images, but requires a large transmission band. **High:** Transmits high-resolution video. This requires a large transmission band. **Low:** Transmits low-resolution video.	Y
Disable	Do not transmit video for the corresponding stream. This is disabled under default settings.	Y
(Stream 3) [a)]	Selects the video transmission rate of the corresponding stream. Selecting [High] enables high-resolution images, but requires a large transmission band. **High:** Transmits high-resolution video. This requires a large transmission band. **Low:** Transmits low-resolution video.	Y
Disable	Do not transmit video for the corresponding stream. This is disabled under default settings.	Y
(Stream 4) [a)]	Selects the video transmission rate of the corresponding stream. Selecting [High] enables high-resolution images, but requires a large transmission band. **High:** Transmits high-resolution video. This requires a large transmission band. **Low:** Transmits low-resolution video.	Y
Disable	Do not transmit video for the corresponding stream. This is disabled under default settings.	Y

Item	Description	Target
5. Frame Synchronizer		
OFF / SDI in 1 / ALL	Configures the frame synchronizer. **OFF:** Do not use the frame synchronizer. **SDI in 1:** Use the frame synchronizer for the input signal of HD SDI IN connector 1. **ALL:** Use the frame synchronizer for all SDI signals.	Y
6. Audio Select		
(Stream 1) [a]		
ch1,2	Transmits the Ch 1 and 2 audio signals of the corresponding stream. This is enabled under default settings.	Y
ch3,4	Transmits the Ch 3 and 4 audio signals of the corresponding stream. The [ch 3,4] checkbox cannot be selected by itself. This is disabled under default settings.	Y
Delay	When using a frame synchronizer, use this to increase the delay in the audio signal. The default setting is 0.	Y
(Stream 2) [a]		
ch1,2	Transmits the Ch 1 and 2 audio signals of the corresponding stream. This is enabled under default settings.	Y
ch3,4	Transmits the Ch 3 and 4 audio signals of the corresponding stream. The [ch 3,4] checkbox cannot be selected by itself. This is disabled under default settings.	Y
Delay	When using a frame synchronizer, use this to increase the delay in the audio signal. The default setting is 0.	Y
(Stream 3) [a]		
ch1,2	Transmits the Ch 1 and 2 audio signals of the corresponding stream. This is enabled under default settings.	Y
ch3,4	Transmits the Ch 3 and 4 audio signals of the corresponding stream. The [ch 3,4] checkbox cannot be selected by itself. This is disabled under default settings.	Y
Delay	When using a frame synchronizer, use this to increase the delay in the audio signal. The default setting is 0.	Y
(Stream 4) [a]		
ch1,2	Transmits the Ch 1 and 2 audio signals of the corresponding stream. This is enabled under default settings.	Y
ch3,4	Transmits the Ch 3 and 4 audio signals of the corresponding stream. The [ch 3,4] checkbox cannot be selected by itself. This is disabled under default settings.	Y
Delay	When using a frame synchronizer, use this to increase the delay in the audio signal. The default setting is 0.	Y
Intercom		
ENG	Transmits ENG Intercom. This is enabled under default settings.	Y
PROD	Transmits PROD Intercom. The [PROD] checkbox cannot be selected by itself. This is disabled under default settings.	Y
ENC (Max 8)	Displays the number of selected ENC channels. Up to 8 ENC channels can be selected.	N
DEC (Max 8)	Displays the number of selected DEC channels. Up to 8 DEC channels can be selected.	N
Total (Max 10)	Displays the total number of selected channels. Up to 10 channels can be selected.	N

Item			Description	Target
7. Signal Direction				
	Tally		Selects the transmission direction of the tally signal. **Transmitter** **Receiver**	Y
	GPIO Group 1		Selects the transmission direction of the GPIO Group 1 signal. **Transmitter** **Receiver**	Y
	GPIO Group 2		Selects the transmission direction of the GPIO Group 2 signal. **Transmitter** **Receiver**	Y
		Apply	Click this after modifying the settings to apply them.	

a) For (Stream 1) to (Stream 4), [SDI in 1] to [SDI in 3] (local unit's SDI input) or [Opposite SDI in 1] to [Opposite SDI in 3] (partner unit's SDI input) are displayed according to the [Transmission Settings].

[Network] Page

Item			Description	Target
		Apply	Click this after modifying the settings to apply them.	
1. Main Port Configuration				
	Basic Settings			
		Host IP Address (1/2)	Specifies the MAIN connector's first IP address. The default setting is 192.168.10.1.	Y
		Host IP Address (2/2)	Displays the MAIN connector's second IP address. A sequential IP address is configured automatically based on the first address. The default setting is 192.168.10.2.	N
		Subnet Mask	Specifies the MAIN connector's subnet mask. The default setting is 255.255.255.0.	Y
		Destination IP Address (1/2)	Specifies the first IP address of the partner unit's MAIN connector. The default setting is 192.168.10.10.	Y
		Destination IP Address (2/2)	Displays the second IP address of the partner unit's MAIN connector. A sequential IP address is configured automatically based on the first address. The default setting is 192.168.10.11.	N
		Destination Subnet Mask	Specifies the subnet mask of the partner unit's MAIN connector. This appears only when [Main Port Gateway] is enabled under [Function Enable] in the [Others] page.	Y
		Gateway	Specifies the gateway of the MAIN connector. This appears only when [Main Port Gateway] is enabled under [Function Enable] in the [Others] page.	Y
		Speed	Displays the transmission speed of the LAN connected to the MAIN connector.	N
		Stream Mode	Sets the stream mode. **Unicast** **Multicast**	Y
		Multicast Address (1 to 6)	Sets the first multicast address for the MAIN connector. The default setting is 239.0.10.1.	Y
			Displays the sixth multicast address for the MAIN connector.	N
	Register IP Address			
		IP Address 1	Sets the IP address of the computers connected to the MAIN connector network if "Multicast" is selected for [Stream Mode].	Y
		IP Address 2		
		IP Address 3		
		IP Address 4		
		IP Address 5		
		IP Address 6		
		IP Address 7		
		IP Address 8		

Item			Description	Target
2. Control Port Configuration				
	DHCP		Selects whether to use DHCP to configure the CONTROL connector's IP address. This is disabled under default settings.	Y
	IP Address		When the DHCP is disabled, this specifies the IP address. The default setting is 192.168.0.3.	Y
	Subnet Mask		When the DHCP is disabled, this specifies the subnet mask. The default setting is 255.255.255.0.	Y
	Default Gateway		When the DHCP is disabled, this specifies the default gateway. The default setting is 192.168.0.253.	Y
3. Network Test				
	Test mode		Select this checkbox to test the network environment. Select the [Test mode] checkbox for the partner unit as well. This is disabled under default settings.	N
	Run		Starts the network environment test.	N
	Test result		Displays the test results.	N
		Physical link	Test result for the physical interface.	N
		ICMP Echo/Reply	Test result for the MAIN connector's IP address and ICMP echo on the partner unit.	N
		Network Genlock	Network synchronization status. This appears only on the Follower side.	N
		Packet delay	Average delay time for received packets. This appears only on the Follower side.	N
		Packet delay jitter	Difference between the shortest delay and longest delay for received packets. This appears only on the Follower side.	N
		Packet loss	Number of received video packet errors and number of packets lost during the test, and the total number since the unit was turned on.	N
		Throughput (informative)	Bit rate of the video packets received during the test (reference value), and the total byte count of the received packets.	N
		Apply	Click this after modifying the settings to apply them.	

[Others] Page

Item			Description	Target
		Apply	Click this after modifying the settings to apply them.	
1. Device Name			Specifies the name of this unit. This name is displayed in the title of the web menu. The default setting is [Sony IP Live Production Unit].	Y
2. User Name and Password Change				
	Select Items		Selects the item to be changed.	
		User Name	Select this checkbox to change the user name. The default setting is [Users].	N
		Password	Select this checkbox to change the password. The default setting is [NXL-IP55].	N
	User Name		Displays the current user name.	N
	New User Name		Enter the new user name.	N
	Password		Enter the current password.	N
	New Password		Enter the new password.	N
	Retype New Password		Reenter the new password.	N
3. Setting Restore				
	Create a System Restore point		Saves the current settings as the restore point. Select this checkbox, and click the [Create] button.	N
	Undo System Changes with System Restore		Returns the unit's settings to the restore point conditions. Select this checkbox, and click the [Restore] button.	N
	Undo System Changes with Default Settings		Returns the unit's settings to the default settings. Select this checkbox, and click the [Default] button.	N

Item	Description	Target
4. Import System Configuration	Loads a configuration file saved on a computer.	
Import File	Selects the configuration file to import. Click the [Browse…] button to display a select file dialog, and select a file.	N
Enable Host IP Address	Place a check mark in the checkbox to include the host IP address setting when importing.	N
Enable Destination IP Address	Place a check mark in the checkbox to include the destination IP address setting when importing.	N
Enable Multicast Address	Place a check mark in the checkbox to include stream mode and multicast settings when importing.	N
Enable Registered IP Address of Controller/PC	Place a check mark in the checkbox to include IP address settings 1 to 8 from [Register IP address] in the [Network] page when importing.	N
Enable Control Port Configuration	Place a check mark in the checkbox to include the CONTROL connectors IP address setting when importing.	N
Enable Device Name	Place a check mark in the checkbox to include the device name setting when importing.	N
Import	Starts importing the configuration file.	N
5. Export System Configuration	Saves the configuration file to a computer.	
Export	Starts exporting the configuration file. Click [Export] to display a save file dialog and specify a file name.	N
6. Date and Time		
Time Zone Offset	Specifies the time zone.	N
Date	Specifies the date.	N
Time	Specifies the time.	N
7. System Control		
Reboot	Restarts the unit. Place a check mark in the checkbox, and click [Reboot].	N
8. Function Enable		
Main Port Gateway	Place a check mark in the checkbox to transmit the MAIN connector's signal between different segments.	Y
Apply	Click this after modifying the settings to apply them.	

Specifications

General

Power supply DC 19.5 V

Current consumption
2.2 A

Operating temperature
5 °C to 40 °C (41 °F to 104 °F)

Storage temperature
–20 °C to +60 °C (–4 °F to +140 °F)

Mass 2.5 kg (5 lb. 8.2 oz.)

Input connectors

REF IN BNC type (1)
HD: SMPTE 274M, 3-value sync
0.6 Vp-p, 75 Ω
SD: Sync (NTSC: 0.286 Vp-p, 75 Ω / PAL: 0.3 Vp-p, 75 Ω)

HD SDI IN BNC type (3)
SMPTE 292M/327M, 1.485 Gbps/ 1.4835 Gbps

DC IN 19.5 V

Output connectors

REF OUT BNC type (3)
HD: BTA-S001A, 3-value sync
0.6 Vp-p, 75 Ω
SD: Sync (NTSC: 0.286 Vp-p, 75 Ω / PAL: 0.3 Vp-p, 75 Ω)
SD: Black burst signal (NTSC: 0.286 Vp-p, 75 Ω / PAL: 0.3 Vp-p, 75 Ω)

HD SDI OUT BNC type (5)
SMPTE 292M/327M, 1.485 Gbps/ 1.4835 Gbps

I/O connectors

AUDIO/INTERCOM
25-pin D-sub connector (1)

TALLY/GPIO 25-pin D-sub connector (1)

MAIN RJ-45 (1), 1000BASE-T

CONTROL RJ-45 (1), 100BASE-TX

Supplied accessories

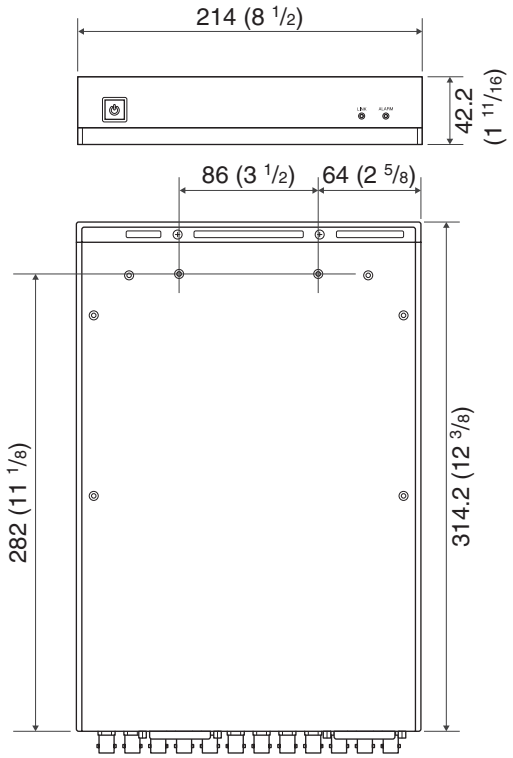
AC adapter (1)
Warranty (1)
Operation guide (1)
Clamp (1)

Optional accessories

Power cord (Service Parts No.: 1-757-562-11 (USA, Canada), 1-575-131-82 (EU))

Dimensions

Units: mm (inches)



To stabilize the unit, use the screw holes (two holes indicated in the above dimensions, M3) at the bottom of the unit.

Design and specifications are subject to change without notice.

Note

Always verify that the unit is operating properly before use. SONY WILL NOT BE LIABLE FOR DAMAGES OF ANY KIND INCLUDING, BUT NOT LIMITED TO, COMPENSATION OR REIMBURSEMENT ON ACCOUNT OF THE LOSS OF PRESENT OR PROSPECTIVE PROFITS DUE TO FAILURE OF THIS UNIT, EITHER DURING THE WARRANTY PERIOD OR AFTER EXPIRATION OF THE WARRANTY, OR FOR ANY OTHER REASON WHATSOEVER.

External Interfaces

AUDIO/INTERCOM (25-pin D-sub, female)

Pin number	Signal
1 a)	Analog Audio in/out 1 (X)
2 a)	Analog Audio in/out 2 (X)
3 a)	Analog Audio in/out 3 (X)
4 a)	Analog Audio in/out 4 (X)
5 a)	Analog Audio in/out 5 (X)
6 a)	Analog Audio in/out 6 (X)
7	Analog Audio (G)
8	4W: Intercom ENG Input (X) RTS/Clear-Com: Not used
9	4W: Intercom PROD Input (X) RTS/Clear-Com: Not used
10	4W: Intercom ENG Output (X) RTS/Clear-Com: Intercom
11	4W: Intercom PROD Output (X) RTS/Clear-Com: Intercom
12	NC
13	GND
14 a)	Analog Audio in/out 1 (Y)
15 a)	Analog Audio in/out 2 (Y)
16 a)	Analog Audio in/out 3 (Y)
17 a)	Analog Audio in/out 4 (Y)
18 a)	Analog Audio in/out 5 (Y)
19 a)	Analog Audio in/out 6 (Y)
20	GND
21	4W: Intercom ENG Input (Y) RTS/Clear-Com: Not used
22	4W: Intercom PROD Input (Y) RTS/Clear-Com: Not used
23	4W: Intercom ENG Output (Y) RTS/Clear-Com: Not used
24	4W: Intercom PROD Output (Y) RTS/Clear-Com: Not used
25	NC

a) Analog audio interface
Input: +4dBu/0dBu/–20dBu
Output: +4dBu/0dBu/–20dBu

TALLY/GPIO (25-pin D-sub, female)

Pin number	Signal
1 a)	R Tally 1 in/out (X)
2 a)	G Tally 1 in/out (X)
3 a)	R Tally 2 in/out (X)
4 a)	G Tally 2 in/out (X)
5 a)	R Tally 3 in/out (X)
6 a)	G Tally 3 in/out (X)
7	GND
8 b)	GPIO Group1 - 1 in/out
9 b)	GPIO Group1 - 3 in/out
10 b)	GPIO Group2 - 1 in/out
11 b)	GPIO Group2 - 3 in/out
12	GND
13	GND
14 a)	R Tally 1 in/out (Y)
15 a)	G Tally 1 in/out (Y)
16 a)	R Tally 2 in/out (Y)
17 a)	G Tally 2 in/out (Y)
18 a)	R Tally 3 in/out (Y)
19 a)	G Tally 3 in/out (Y)
20	GND
21 b)	GPIO Group1 - 2 in/out
22 b)	GPIO Group1 - 4 in/out
23 b)	GPIO Group2 - 2 in/out
24 b)	GPIO Group2 - 4 in/out
25	GND

a) Tally interface
Input
ON: TTL;H, Contact; Short
OFF: TTL;L, Contact; Open
Output
ON: Contact; Short
OFF: Contact; Open

b) GPIO interface
Input: L;0, H;+5V
Output: L;0, H;+5V

Note

When used as an input, an external pull-up resistance of approximately 10 kΩ is required because the unit has an internal 100 kΩ pull-down resistance.
When used as an output, the load should be configured such that the current does not exceed ±5 mA.

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For details on acquiring source codes, consult your Sony service representative.

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